



UNITED STATES PATENT AND TRADEMARK OFFICE

11A

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,824	03/22/2004	Tieyu Zheng	111079-135672	1482
31817	7590	09/19/2006	EXAMINER	
SCHWABE, WILLIAMSON & WYATT PACWEST CENTER, SUITE 1900 1211 S.W. FIFTH AVE. PORTLAND, OR 97204			GOLUB, MARCIA A	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/805,824		ZHENG, TIEYU	
	Examiner		Art Unit	
	Marcia A. Golub		2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-13 and 16-24 is/are pending in the application.
- 4a) Of the above claim(s) 13 and 16-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 8/30/06 have been fully considered but they are not persuasive.

Regarding the applicant's argument that Watts teaches away from having an optical path that is orthogonal to the cooling surface of the TEC, the examiner points to column 3 lines 34 and 35 and Fig 8 of the reference. Watts discloses using a beam splitter in the optical path of the laser beam. A beam splitter is a steering mirror that is not completely reflective, partial reflectivity allows some of the light to be transmitted in the original direction while reflecting the rest of the light beam in an orthogonal direction. Furthermore, in order to "teach away", the reference has to disclose that a particular combination of elements would render the device inoperable, or suggest an incompatibility between certain components. Watts does not suggest incompatibility since the reference specifically discloses using a beam splitter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 6, 8, 23, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watts et al. (6,729,143) hereinafter '143, and further in view of Acklin et al. (6,778,576) hereinafter '576.

Regarding **claim 1**, Fig 9 of '143 discloses "an optoelectronic apparatus comprising:

a substrate [11] having a stepped surface having a lower and an upper portion;
a thermal electric cooler (TEC) disposed on the lower portion of the stepped surface of the substrate, the TEC having a plurality of elongated TEC elements [33] disposed substantially in parallel between a top [32] and a bottom [34] portion of the

TEC, the top portion [32] of the TEC having a top planar surface that is substantially orthogonal to the TEC elements [33];

and a laser light source [12] disposed on the top planar surface [32] of the TEC, and a laser light steering mirror [beam splitter 15] subassembly disposed on the thermal electric cooler, adjacent to the laser light source [12]". (Fig 8 and 3/34-35)

Fig 9 of '143 discloses an optoelectronic apparatus as described above but does not disclose a that the beam splitter is used to "redirect the light bundles emitted by the laser light source to a direction substantially orthogonal to the top planar surface". However, Fig 1 of '576 discloses redirecting the light beam with a steering mirror in a direction that is orthogonal to the top planar surface.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of '576 into the device of '143 by using the beam splitter to redirect part of the light beam in a direction that is orthogonal to the top planar surface of the TEC for at least the purpose of placing the assembly in a laser package.

Regarding **claims 6, 8, 23, 24**, Fig 9 of '143 discloses an optoelectronic apparatus as described above:

6. "wherein the apparatus further comprises a selected one of a driver and an amplifier [13, 15] disposed on an upper portion of the stepped surface of the substrate [11], and coupled to the laser light source [12]";
8. "wherein the laser light source [12] comprises a laser diode device";
23. "wherein said laser light source [12] is disposed on the top planar surface of the top portion [32] of the TEC to emit light bundles in a direction parallel to the top planar surface";
24. "wherein said laser light source [12] is disposed directly on the top planar surface of the top portion [32] of the TEC" (Fig 8)

Regarding **claim 2**, Fig 9 of '143 discloses an optoelectronic apparatus as described above but does not disclose a ceramic substrate. However, Fig 1 of '576 discloses:

2. "wherein the substrate [2] comprises a ceramic material" (4/61);

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of '576 into the device of '143 by making the ceramic substrate for at least the purpose of dissipating heat.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over '143 and '576 as applied to claim 2 above.

'143 and '576 disclose an optoelectronic apparatus as described above, but do not disclose:

3. "wherein the ceramic material comprises a selected one of aluminum nitride, alumina, and beryllium oxide".

These materials/elements are known in the art to be used with lasers.

It would have been obvious to one of ordinary skill in the art at the time the of the invention to make the laser of these known materials/elements, since it has been held to be within the general skill of a worker in the art to select a known material/element on the basis of it's suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

Claims 4, 7, 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over '143 and '576 as applied to claim 1 above, and further in view of Stewart et al. (2003/0043868) hereinafter '868.

Fig 9 of '143 and Fig 1 of '576 discloses an optoelectronic arrangement as described above but does not disclose inclosing the apparatus in a laser package. However, TO laser packages are well known in the art and are disclosed in '868:

4. "wherein the substrate [102] comprises a plurality of vias [holes for pins 104] to facilitate routing of electrical connections to the thermal electric cooler.
7. "wherein the substrate [102] comprises a plurality of vias [holes for pins 104] to facilitate routing of electrical connections to the selected one of the driver and the amplifier"
10. "wherein the apparatus further comprises an overhanged welding ring [102]

disposed around the substrate”;

11. “wherein the apparatus further comprises a cap [301] with an optical window [304] to cover the laser light source [106] and the thermal electric cooler”;

12. “wherein the optical window [304] comprises a flat glass window.” (paragraph 0032)

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of ‘868 into the device of ‘143 and ‘576 by incorporating the optical module inside a TO laser package for at least the purpose of mass producing the laser.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over ‘143 and ‘576 as applied to claim 1 above, and further in view of ‘868.

‘143 and ‘576 disclose an optoelectronic apparatus as described above, but do not disclose:

5. “wherein the thermal electric cooler comprises a T-shaped bottom portion.”

However, Fig 7 of ‘868 discloses making the top plate [502] of the TEC in a T shape.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of ‘868 into the device of ‘143 and ‘576 by making the bottom plate of the TEC in a T shape for at least the purpose of accommodating the optical module inside the package.

Conclusion

This is a continuation of applicant's earlier Application No. 10/805,824. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

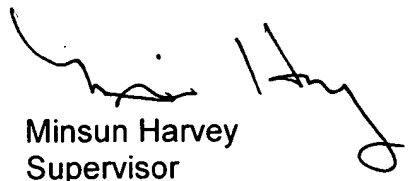
Contact Info

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia A. Golub whose telephone number is 571-272-8602. The examiner can normally be reached on M-F 9-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marcia A. Golub
Assistant Examiner
Art Unit 2828


Minsun Harvey
Supervisor
Art Unit 2828

MAG